







Simplify your power management design with TI power solutions

TPS5430 5.5 to 36V input, 3A step down converter

Features

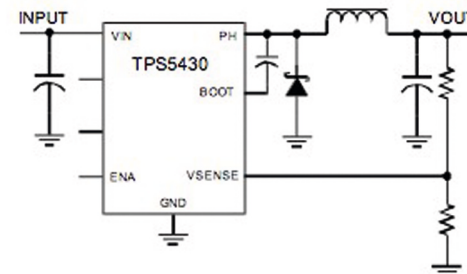
- Integrated 110mΩ N-channel MOSFET
- Fixed 500kHz switching frequency
- Output voltage to 1.23V with 2% accuracy
- Internal slow start circuit
- Internal compensation
- Current limit & thermal shutdown
- Enable pin
- Only 18uA shutdown quiescent current
- -40°C~125°C operating junction temp.
- -40°C~150°C abs max junction temp.
- Thermally enhanced 8 pin HSOIC
- SWIFT™ software tool 
- SwitcherPro™ software tool 
- TPS5410EVM-203 
- TPS5420EVM-175 
- TPS5430EVM-173 
- TPS5450EVM-254 

Applications

- Consumer: LCD-TV, CPE modem, USB hub, STB
- Industrial: fire alarm, PLC, medical imager, LED driver
- Automotive: after-market, car infotainment
- Battery charging off 9-18V AC/DC wall bricks

Benefits

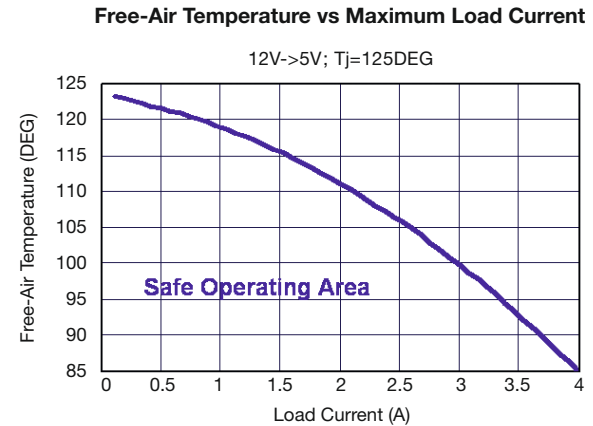
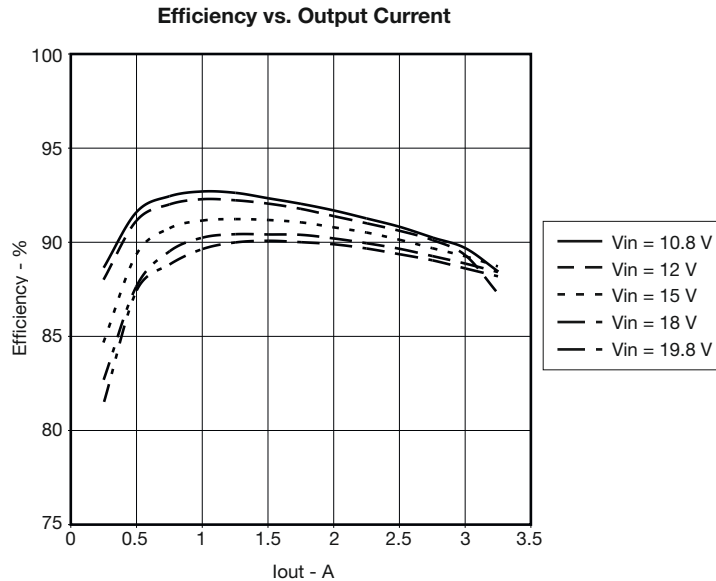
- High efficiency up to 95%
- Small output inductor & capacitor
- High performance
- Limits start-up inrush current
- Reduced external components
- Easy on/off control
- Self-protected from fault conditions
- Low power consumption when switched off
- Reliable & robust at extreme temperatures
- Small with good thermal performance
- Quick & easy design www.ti.com/swift-e



Only 7 external components!

TPS5430 thermal performance

Low MOSFET $R_{ds(on)}$ achieves higher efficiencies at full load



- Greater than 90% efficiency with a non-synchronous buck converter

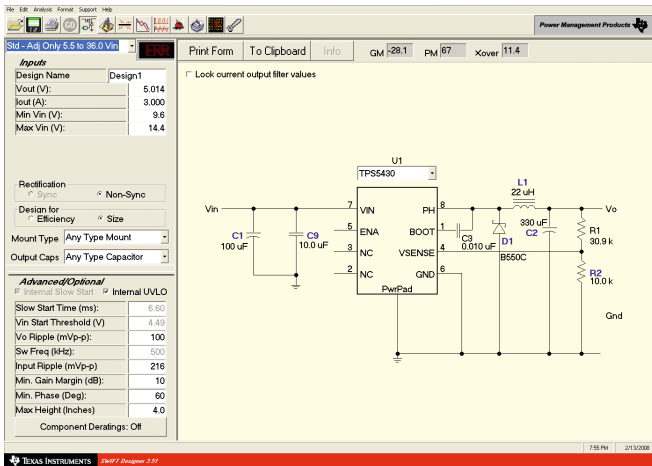
- Greater than 3A output current even at T_j of 125°C
- Ideal for hot environments

SWIFT™ design support

Free download: www.ti.com/swift-e

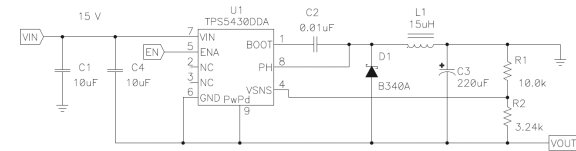
SWIFT designer software – version 3.51

Easy to use software tool speeds time to market and simplifies the power supply design

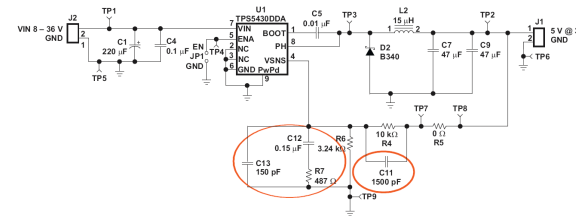


SWIFT application notes

Using the TPS5430 as an inverting buck-boost converter SLVA257A

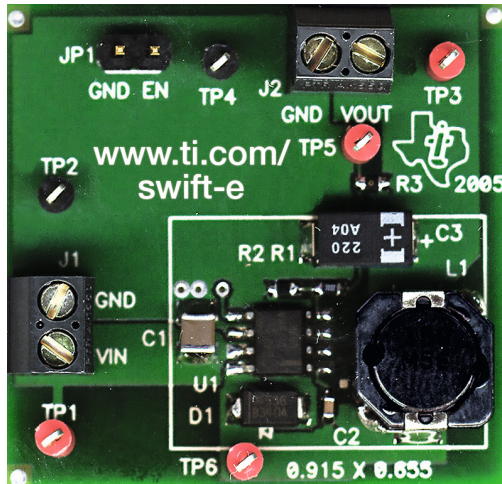


Using TPS5410/20/30/31/50 w/ aluminum and ceramic output capacitors SLVA237C

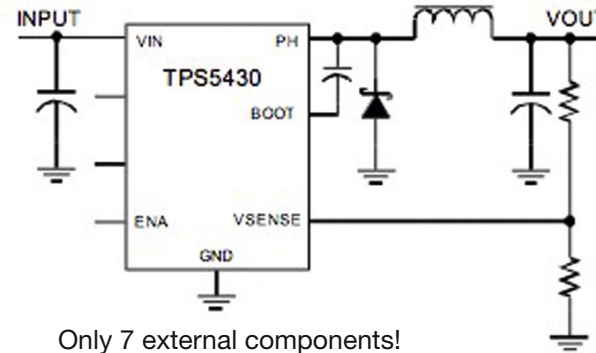


TPS5430 saves board space

- 500kHz switching frequency reduces inductor and capacitor size
- Internal compensation simplifies the power supply design
- 8-pin HSOIC package can provide 3-A continuous at 85°C with no airflow
- Scalable output currents due to same pin out (see table below)



0.6 sq. inch or 387 sq. mm



Only 7 external components!

SAME PINOUT	Part No.	Io (A)	Iph (A)	Package
	TPS5450	5	6	8 HSOIC
	TPS5430	3	4	8 HSOIC
	TPS5420	2	3	8 HSOIC
	TPS5410	1	1.2	8 SOIC

DC/DC converters product offering

Part Number	Vin (V)	Iout (A)	Type	Package	Pin Features
Wide Input					
TPS5410	5.5 to 36	1	non sync buck	8SOIC	EN
TL2575	4.5 to 40	1	non sync buck	TO-220/263 PDIP	EN
TL2575HV	4.5 to 60	1	non sync buck	TO-220/263 PDIP	EN
TPS5420	5.5 to 36	2	non sync buck	8SOIC	EN
TPS5430	5.5 to 36	3	non sync buck	8HSOIC	EN
NEW TPS5450	5.5 to 36	5	non sync buck	8HSOIC	EN
Mid Input					
TPS5435x	4.5 to 20	3	sync / non-sync buck	16HTSSOP	PG, EN, Sync, UVLO, LSG, Rt
TPS54550	4.5 to 20	6	sync / non-sync buck	16HTSSOP	PG, EN, Sync, Softstart, UVLO, LSG, Rt
Dual Mid Input					
NEW TPS54283/6	4.5 to 28	2	non sync buck	14HTSSOP	EN, Sequencing, I-limit
TPS54383/6	4.5 to 28	3	non sync buck	14HTSSOP	EN, Sequencing, I-limit
Low Input					
TPS54110	3 to 6	1,5	synchronous buck	20HTSSOP	PG, EN, Sync, Softstart, Rt
TPS40222	4 to 7	1,6	non sync buck	6 SON	
TPS54317	3 to 6	3	synchronous buck	4x5 QFN	PG, EN, Sync, Softstart, Rt
TPS5431x	3 to 6	3	synchronous buck	20HTSSOP	PG, EN, Sync*, Softstart, Rt
TPS5461x	3 to 6	6	synchronous buck	28HTSSOP	PG, EN, Sync*, Softstart, Rt
TPS54810	4 to 6	8	synchronous buck	28HTSSOP	PG, EN, Sync, Softstart, Rt
TPS54910	3 to 4	9	synchronous buck	28HTSSOP	PG, EN, Sync, Softstart, Rt
TPS54010	2.2 to 4	14	synchronous buck	28HTSSOP	PG, EN, Sync, Softstart, Rt, Split Rail
DDR Memory (Active Bus Termination)					
TPS54x72	3 to 6	3,6,9**	synchronous buck	20/28HTSSOP***	PG, EN, Sync, Rt, REFIN
Sequencing					
TPS54x80	3 to 6	3,6,9**	synchronous buck	20/28HTSSOP***	PG, EN, Rt, TRACKIN
Pre Bias					
NEW TPS54377	3-6V	3	synchronous buck	4x5 QFN	PG, EN, Rt, TRACKIN
TPS54x73	3 to 6	3,6,9**	synchronous buck	20/28HTSSOP***	PG, EN, Sync, Softstart, Rt
Boost / Flyback					
MC33063A	3 to 40	1,5	buck/boost/inverting	8 SOIC	

*Externally compensated versions have sync

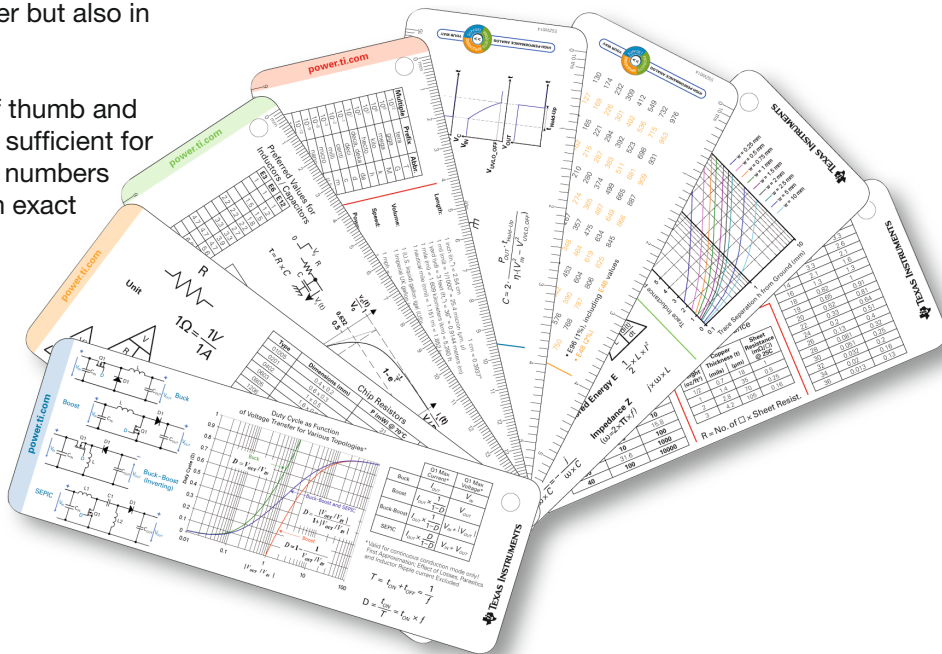
**9A Vin is 3-4V

***3A is in 20 HTSSOP

Find your way in electronics with TI power rulers

Whether you're an experienced design engineer or not, electronics is a vast and complex subject, and you probably often wish you could get a helping hand on some topics you're less familiar with or last encountered several years ago. That's where TI's Power Rulers and their application report can help make your life as a designer easier. You can use them not only in power but also in many other areas of electronics.

TI power rulers provide important rules of thumb and many approximate values. While they are sufficient for a first estimate, the use of more accurate numbers and equations should be considered when exact results are required.



Order your power rulers free of charge at: www.ti.com/europe/ruler

TI Worldwide technical support

Internet

TI Semiconductor product information center
support.ti.com

TI Semiconductor KnowledgeBase
support.ti.com/sc/knowledgebase

Product information centers

Americas

Phone +1(972) 644-5580
Fax +1(972)927-6377
Internet support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone
Toll free 00800 275 83927
International +49 8161 80 2121
Russia +7 (495) 981 07 01
Fax +49 (0) 8161 80 2045
Internet support.ti.com/sc/pic/euro.htm

Japan

Fax
International +81-3-3344-5317
Domestic 0120-81-0036
Internet
International support.ti.com/sc/pic/japan.htm
Domestic www.tij.co.jp/pic

Asia

Phone
International +886-2-23786800
Domestic Toll Free Number
Australia 1-800-999-084
China 800-820-8682
Hong Kong 800-96-5941
India +91-80-41381665 (Toll)
Indonesia 001-803-8861-1006
Korea 080-551-2804
Malaysia 1-800-80-3973
New Zealand 0800-446-934
Philippines 1-800-765-7404
Singapore 800-886-1028
Taiwan 0800-006800
Thailand 001-800-886-0010
Fax +886-2-2378-6808
Email tiasia@ti.com or ti-china@ti.com
Internet support.ti.com/sc/pic/asia.htm

The platform bar and SWIFT are trademarks of Texas Instruments

SLVT151A

